



AP/3727  
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: :

*Mark B. Littlejohn et al.* : Examiner: T.M. Mai

U.S. Serial No. 09/978,484 : Group Art Unit: 3727

Filed October 17, 2001 :

Docket No. 2312 (FJ-00-39) :

For: DEEP DISH DISPOSABLE CONTAINER :  
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Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

**BRIEF ON APPEAL UNDER 37 CFR §41.37(c)**

Sir:

Applicant hereby submits its *Brief on Appeal* in the above-noted United States Patent Application. A *Notice of Appeal* was submitted on August 13, 2004 appealing the rejection of Claims 1-6, 9-38, 50-86, 108 and 109. Please charge the fee for the *Brief* to our Deposit Account No. 50-0935.

This *Brief* is being filed with a *Petition* and fee for a two-month *Extension of Time*. If additional extensions are required, please consider this paper a *Petition* therefore and charge our Deposit Account No. 50-0935.

I. REAL PARTY IN INTEREST

Georgia-Pacific Corporation, 133 Peachtree Street, N.E., Atlanta, Georgia 30303, is the real party in interest in this patent application. The *Assignment* was recorded at Reel 012943 / Frame 0717 on May 31, 2003.

II. RELATED APPEALS AND INTERFERENCE

There are no related appeals, interferences or judicial proceedings related to, or which will affect, or which will be affected by, or which will have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-6, 9-38, 50-86, 108 and 109 are pending in this application and are on appeal. Claims 7, 8, 39-49 and 87-107 have been canceled. A complete listing of the *Claims on Appeal* is provided in Appendix A hereto.

IV. STATUS OF AMENDMENTS

An *Amendment After Final Rejection Under 37 CFR §1.116* to correct typographical errors and tag number errors in the drawings was filed on November 17, 2004. This *Brief* assumes entry of that *Amendment*.

V. SUMMARY OF CLAIMED SUBJECT MATTER

For purposes of this appeal, the pending claims are divided into four (4) groups as follows:

Group I includes Claims 1-6, 9-11, 17-21, 28, 29, 60, 76, 77 and 109;

Group II includes Claims 12-16;

Group III includes Claims 22-27, 30-31, 37, 38, 50-59, 61-63, 69-75, 78, 79, 85, 86 and 108; and

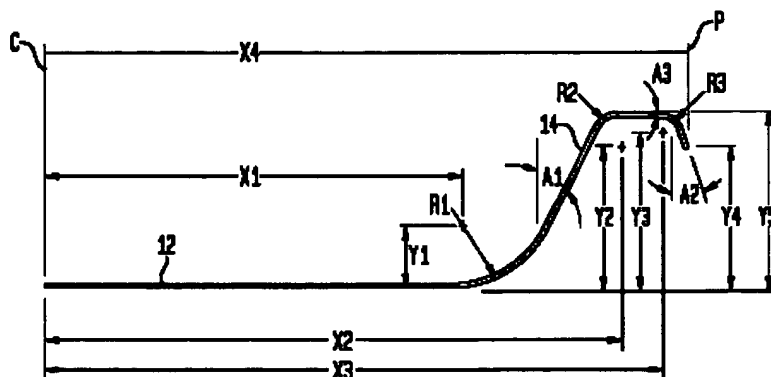
Group IV includes Claims 32-36, 64-68 and 80-84.

With respect to Group I, Claim 1 is representative:

1. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores and the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.

As can be seen, Claim 1 contains recitation of a deep dish container **10** prepared from a scored paperboard blank (**Figures 7A-7D**) having pleats **30**, a height to diameter ratio ( $2X4 / Y5$ ) of from 0.1 to about 0.16 and a characteristic flange with a diameter ratio ( $X4-X2/D$ ) of at least about 0.04, at least about 60 scores and an SSI rigidity of at least 500 grams. Details as to construction are seen in **Figure 4** and explained in the text as filed at page 13, line 13 through page 14, line 15. **Figure 4** is reproduced below.

**FIG. 4**



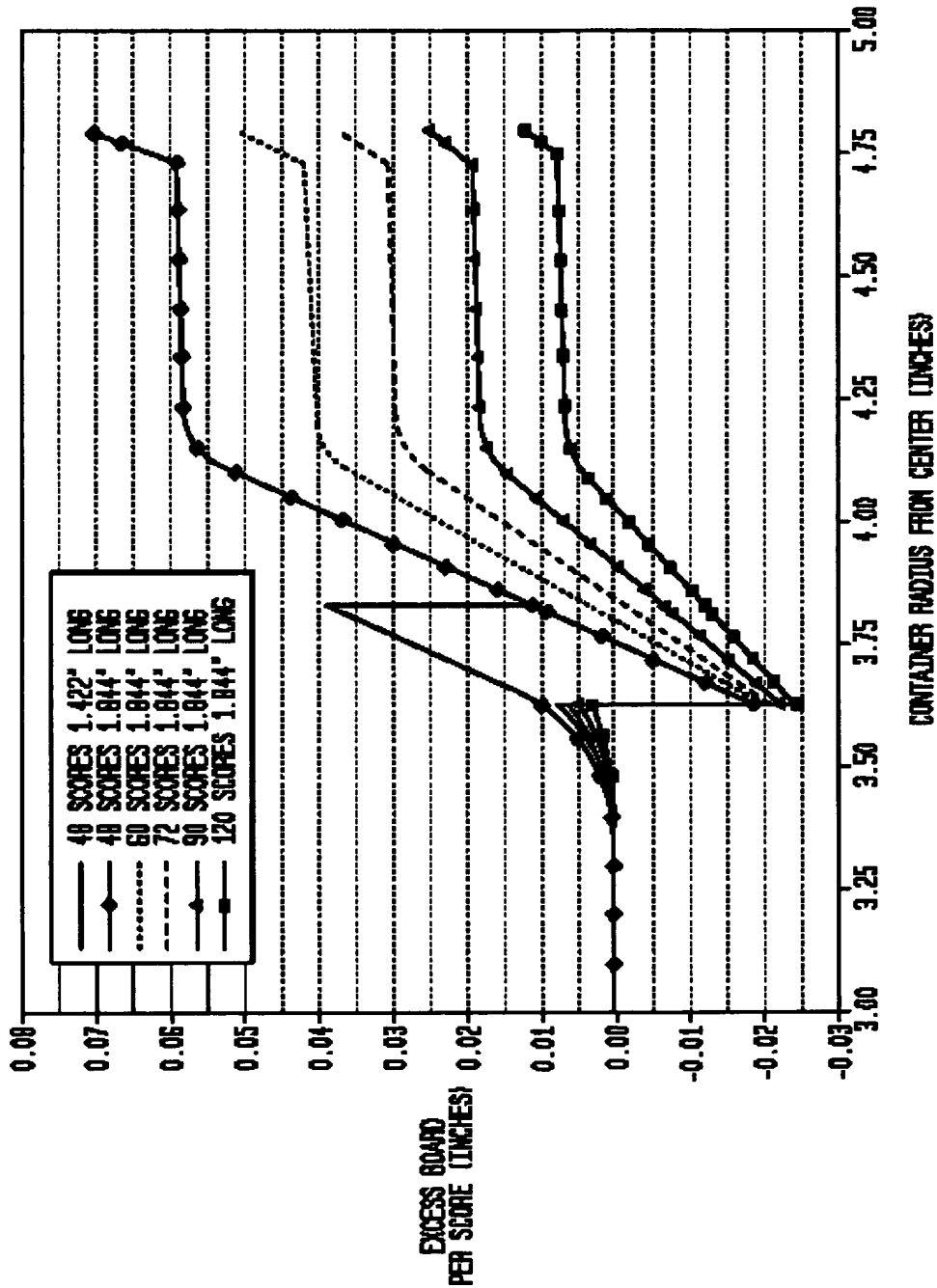
See also Table 1, page 15 of the text as filed.

SSI rigidity is explained in the text as filed at page 29, line 21 and following through page 30, line 18.

It will be appreciated from the discussion which follows that the products claimed exhibit superior stiffness as well as processability as compared with any prior art disclosure. These features are especially appreciated by reference to Claim Group II which recite specific amounts of excess paperboard per score in the product at the flange, a feature clearly not inherent in any reference.

**Figure 11** illustrates that containers having 60-90 scores have less paperboard per score than like containers with less scores.

FIG. 11



However, it is found in accordance with the invention that containers with 60-90 scores have at least as much rigidity as containers with less scores and yet are much more suitable for deep dish containers.

Claim Group II is similar in many respects to Claim Group I; however, specific amounts of excess board per score is recited. Claim 12 is representative:

12. The deep dish disposable container according to Claim 1 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.

Calculation of excess board is detailed at page 21, line 12 and following and is readily understood as the difference between the circumference of the formed product and the flat paperboard blank from which the product is made. The excess paper at a given radial location is formed into the product, preferably in the form of pleats.

Claim Group III is similar to Claim Group I except it does not contain the 60-90 score paperboard blank recitation, but contains instead recitation, for example, of coatings and the like. Claim 22 is representative:

22. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, at least one surface of said paperboard blank bearing a substantially liquid-impervious coating comprising an inorganic pigment and a water-based, press-applied overcoat, the container having a substantially planar bottom portion, an upwardly extending sidewall portion, an outwardly extending flange portion, and a lip downwardly extending therefrom, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from two to three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, wherein the ratio of the height to diameter of said container is from at least about 0.1 to about 0.16, the ratio of the length of said downwardly extending lip to the diameter of said deep dish disposable container is from about 0.010 to about 0.030 and wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.

Claim Group IV is similar to Claim Group II except that it does not contain the 60-90 score paperboard blank recitation, but does recite specific excess paperboard amounts. Claim 32 is representative of this group; Claims 27 and 32 are reproduced below for purposes of linking Claim 32 to Claim 22 above.

27. The deep dish disposable container according to Claim 22, wherein said radially scored paperboard blank has from about 50 to about 100 radial scores.

32. The deep dish disposable container according to Claim 27 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.

#### VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

In the *Final Rejection* of May 19, 2004, Claims 12-16, 25, 67-68 and 80-84 were rejected under 35 USC §112, second paragraph, as being indefinite; the Examiner asserted that it was unclear how the excess paperboard in terms of inches and percentages were calculated by the variables shown in **Figure 4**. That contention is traversed.

##### A. Concise Statement Of §112, Second Paragraph Issue On Appeal

Whether the definitions and sample calculations of excess paperboard given in the specification at pages 16-17, 21-23 and following as well as Tables 4-6 and **Figures 10 and 11** enable one of skill in the art to reasonably interpret the claims which employ the terminology excess paperboard.

##### B. Concise Statement Of Obviousness Issues On Appeal

Claims 1-6, 9-20, 50-52, 54-86, 108 and 109 were rejected as obvious over *Marx et al.*, United States Patent No. 4,721,499, while Claims 21-38 and 53 were rejected as obvious over *Marx et al.* '499 in further view of United States Patent No. 5,876,815 of *Sandstrom et al.* '815. Claim Groups I-IV have different scope as noted above and thus for purposes of this Appeal, the issues as to obviousness are concisely stated below:

1. With respect to Claim Group I, whether (a) Claims 1-6, 9-11, 17-20, 60, 76, 77 and 109 are obvious over *Marx et al.* '499 taken alone and (b) whether Claim 21 is obvious over *Marx et al.* '499 in view of *Sandstrom et al.* '815.

2. With respect to Claim Group II, whether Claims 12-16 are obvious over *Marx et al.* '499 taken alone.
3. With respect to Claim Group III, (a) whether Claims 50-52, 54-59, 61-63, 69-75, 78, 79, 85, 86 and 108 are obvious over *Marx et al.* '499 taken alone and (b) whether Claims 22-31, 37-38 and 53 are obvious over *Marx et al.* '499 in further view of *Sandstrom et al.* '815.
4. With respect to Claim Group IV, (a) whether Claims 64-68 and 80-84 are obvious over *Marx et al.* '499 taken alone and (b) whether Claims 32-36 are obvious over *Marx et al.* '499 in further view of *Sandstrom et al.* '815.

## VII. ARGUMENT

All grounds of rejection should be withdrawn. The §112, second paragraph rejection is untenable. Excess paperboard as that term is used in this case is not only reasonably definite; values can be and are calculated with mathematical precision. Applicant notes that numerical ranges are ordinarily regarded as satisfying §112, second paragraph; MPEP § 2173.05 (c). Moreover, equations, calculation procedures and examples given in a specification are well established means by which claim terms are defined. In this regard, Applicant notes *W. L. Gore and Associates v. Garlock*, 220 USPQ 303, 316-317 (CAFC 1983) wherein Judge Markey explains and affirms well-established norms.

Moreover, the obviousness rejections in this case are speculative at best, certainly not within the teachings of *Marx et al.* '499 which fails to disclose, teach or suggest the claimed subject matter. Indeed, *Marx et al.* '499 teaches away from Claim Group I, for example, wherein the reference clearly states that it is desirable to **minimize** the number of score lines in a paperboard blank at Col. 6:



Blank 40 depicted in FIG. 3 is the type generally used  
 15 to form circular containers such as plates and bowls.  
 Preferably the blank includes a plurality of radially  
 extending score lines 42 circumferentially disposed  
 around the periphery of blank 40. The score lines define  
 20 locations at which pleats are created in the side wall,  
 second curved portion, rim and lip during forming of  
 the container. The number of score lines 42 may vary  
 between 10 and 100 for a circular container depending  
 on the rigidity desired and on the radius R and height H  
 of the container. Generally, the fewer score lines, and  
 25 therefore, the fewer resulting pleats, the more rigid the  
 resulting container. Significant to this invention, the  
 fewer score lines for a given reduction in radius at the  
 side wall and rim the greater the overlap of paperboard  
 at the pleats which places more fiber in the area of  
 30 densification. Thus, with appropriate pressure, moisture  
 and temperature conditions, improved bonding of the  
 fiber network is achieved. This can be referred to as  
 pleat bonding. Where the contemplated container is  
 other than circular, score lines are provided in the blank  
 35 in areas to be formed into annular portions of the con-  
 tainer.

*Marx et al.*'499, Col. 6, lines 14-35.

It was found in accordance with the deep dish containers of the invention that minimizing the number of score lines leads to product non-uniformity and is not necessary to maximize strength; a surprising result indeed in view of *Marx et al.* '499. This aspect of the invention is particularly important in a commercial context, because both strength and uniformity are important to consumers.

The present invention is directed to a pressed paperboard, deep dish container prepared from a paperboard blank. In connection with their manufacture, a planar blank is press-formed into shape under heat and pressure. The diameter of the finished product is less than that of the paperboard blank because the molded-in shape has 3-dimensional "depth"; so that a food serving stays where it is placed. Because the diameter of the flat blank has changed where shape has been molded in, notably at the sidewalls of the container, excess circumferential paperboard is present at an upwardly extending sidewall and outwardly therefrom. This excess paperboard is formed into pleats which provide strength.

It is especially important to control pleating in deep dish container of the invention because there is more excess paperboard than in "flatter" paper plates. It has been found in accordance with the invention that too few pleats in a deep dish container lead to product

non-uniformity and too many pleats in a deep dish container do not provide enough strength and also lead to non-uniform product.

In this regard, it is illustrated in **Figures 13A** through **13C** and discussed at pages 33-34 of the application as filed:

In **Figure 13A** there is shown schematically a portion of a nominal 9½" diameter, 1¼" height made from a paperboard blank with 48 1.422" scores. As can be seen at **A**, there tends to be non-uniformities particularly in the region between the lower portion of the sidewall and the bottom of the container where material is gathered somewhat randomly. Besides being unsightly, the non-uniform structure of the container leads to non-uniform properties between containers, as is reflected in the standard deviations in plate rigidity reported above.

**Figure 13B** shows schematically a portion of a container similar to the one in **Figure 13A**, except that the container was made from a paperboard blank with 72 1.844" radial scores. As shown at **B**, the pleats are relatively uniform. Product uniformity is reflected in the standard deviation in rigidity reported above for this geometry. That is, deep dish containers made from blanks with having from about 60 to about 90 scores generally exhibited lower standard deviations in the rigidity measurements.

**Figure 13C** is a schematic representation of a portion of a container similar to the one shown in **Figure 13B**, except the container was made from a paperboard blank with 120 1.844" scores. Here, non-uniformities depicted at **C** include "unfilled" scores and somewhat random pleating. Considerable flange distortion was also observed, believed to have been caused by the ejection ring from the mold. Apparently, the brims were not robust enough to resist damage in the manufacturing process. Here again, the standard deviation was relatively high, indicative of non-uniform product.

**Figures 13A-C**, reproduced below, were prepared from representative samples to illustrate the point:



**FIG. 13A**

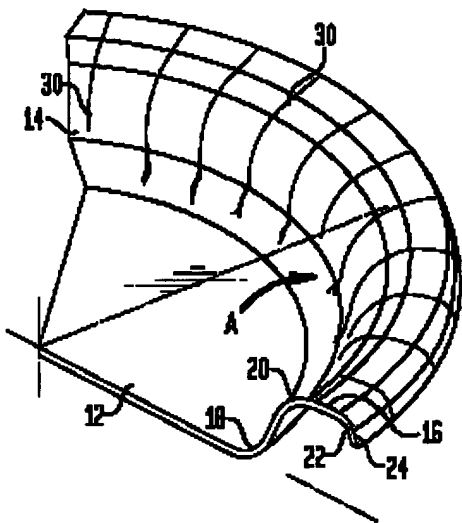


Figure 13A shows the unsightly appearance when there are too few pleats.

**FIG. 13B**

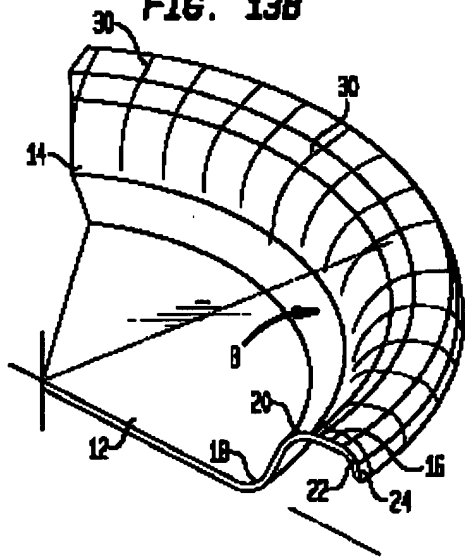
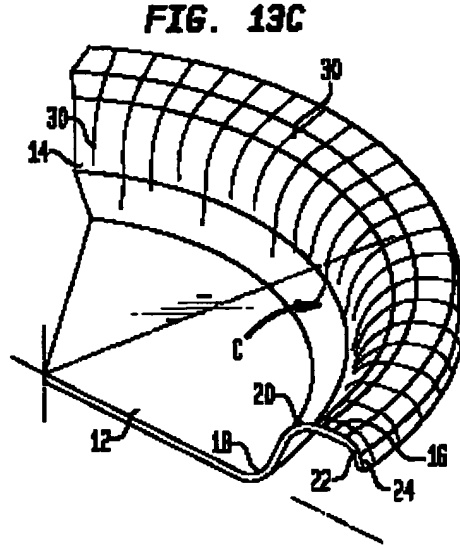


Figure 13B shows the uniform appearance when there are 60-90 pleats.



**Figure 13C** illustrates the unsightly appearance when there are too many pleats.

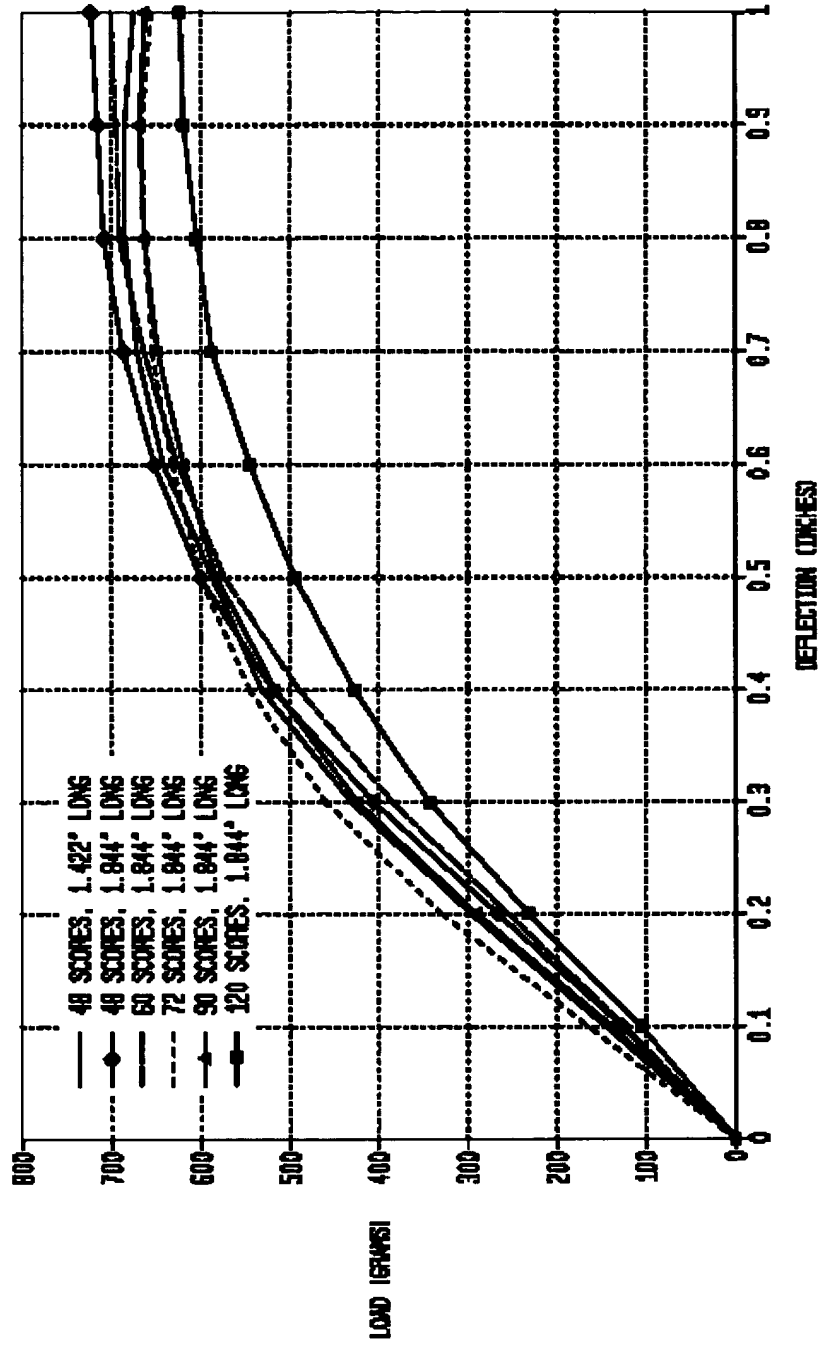
Furthermore, the non-uniformity when there are too many or too few pleats is quantitatively apparent from the data in Table 7 of the application as filed (p. 31) wherein it is seen that containers with 48 scores had average standard deviation in rigidity of 0.0145  $((0.019 + 0.010) / 2)$  and the 120 score product had a standard deviation in rigidity of 0.029. In contrast, the containers of Claim Group I, 60-90 scores had a standard deviation in rigidity of 0.008  $((0.005 + 0.012 + 0.007) / 3)$ , almost two times better than the 48 score product and more than 3 times better than the 120 score product.

Claim Group III recites a deep dish container of specified dimensions with high strength; a rigidity of 500 grams or more. *Marx et al.* '499 does not remotely suggest this claimed subject matter. Compare, for example, Col. 10 of *Marks et al.* '499 where the patent reports rigidity values on the same basis of up to 280 grams:

30  
35  
sured. For typical prior commercially produced 9 inch paper plates rigidity readings made as described above generally averaged about 60 grams or less (using the Hunter Force Gauge), and the plate as shown in co-pending application, Ser. No. 367,880, had an average rigidity of about 90 grams/0.5 inch deflection. A comparable 9 inch plate produced in accordance with the invention has rigidity in the range of 140 gms to 280 gms/0.5 inch deflection depending on the paper weight used and the number of score lines.

280 is not remotely suggestive of 500, which is almost 80% more rigidity. This feature enables the use of much less material in disposable products; a highly useful and nonobvious result. The high strength, deep dish containers of the invention are simply not taught. The remarkable strength and uniformity of the product lies, in part, in the discovery that a relatively high number of pleats can provide maximum strength and that the excess paperboard plays a role. Likewise the deep dish geometry plays a role and applicant is entitled to claims of varying scope. *Note Figure 12*, where it is seen the products can be made with 90 pleats (from 90 scores) without much reduction from the maximum strength profile of a deep dish product of the invention. **Figure 12** is reproduced below:

FIG. 12



In fact, excellent rigidity is seen at less than 0.05 inches of excess paperboard per score at the flange and even down to 0.01 or so; an unexpected result based on *Marks et al.* '499. Note **Figure 11** of the application as filed, reproduced above. **Figure 11** supports independent patentability with respect to Claim Groups II and IV.

Further discussion of the issues appears below.

**A. The §112, Second Paragraph Rejection Of Claims 12-16, 25, 67-68 And 80-84 Should Be Reversed**

The various Claims rejected on the basis of Section 112, second paragraph were rejected on the basis that the Claim terminology "excess paperboard" is somehow insufficiently described or defined in this case. That assessment is manifestly incorrect. Applicant is his or her own lexicographer and may choose to define claim terminology by way of equations, calculation procedures and so forth or any other manner which is reasonably definite. Even the absence of a specific procedure to calculate a parameter (certainly not the case here) does not necessarily render claims indefinite. Any doubt as to the practice of using product characteristics or measurements on a product or component thereof to define an invention was dispelled by Judge Markey in *Gore v. Garlock*, 220 USPQ 303, 316-317 (CAFC 1983):

The district court, though discussing enablement, spoke also of indefiniteness of "stretch rate," a matter having to do with §112, second paragraph, and relevant in assessment of infringement. The use of "stretching \* \* \* at a rate exceeding about 10% per second" in the claims is not indefinite. Infringement is clearly assessable through use of a stopwatch. No witness said that could not be done. As above indicated, subsequently developed and therefore irrelevant formulae cannot be used to render non-enabling or indefinite that which was enabling and definite at the time the application was filed.

Similarly, absence from the specification of a method for calculating the minimum rate of stretch above 35°C does not render the specification non-enabling. The specification discloses that "[t]he lower limit of expansion rates interact with temperature in a roughly logarithmic fashion, being much higher at higher temperatures." Calculation of minimum stretch rate above 35°C is nowhere in the claims, and it is the claimed invention for which enablement is required. The claims require stretching at a rate greater than 10% per second at temperatures between 35°C and the crystalline melt point of unsintered PTFE. That the minimum rate of stretch may increase with temperature does not render non-enabling Dr. Gore's specification, particularly in the absence of

convincing evidence that those skilled in the art would have found it non-enabling at the time the application was filed.

The district court invalidated both patents for indefiniteness because of its view that some "trial and error" would be needed to determine the "lower limits" of stretch rate above 10% per second at various temperatures above 35°C. That was error. Assuming some experimentation were needed, a patent is not invalid because of a need for experimentation. *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270-71 (1916). A patent is invalid only when those skilled in the art are required to engage in undue experimentation to practice the invention. *In re Angstadt*, 537 F.2d 498, 503-04, 190 USPQ 214, 218 (CCPA 1976). There was no evidence and the court made no finding that undue experimentation was required.

Moreover, the finding here rested on confusion of the role of the specification with that of the claims. The court found that the specification's failure to state the lower limit of stretch rate (albeit above 10% per second) at each degree of temperature above 35°C (a requirement for at least hundreds of entries in the specification) did not "distinguish processes performed above the 'lower limit' from those performed below the 'lower limit'." The claims of the '390 patent say nothing of processes and lower limits. Distinguishing what infringes from what doesn't is the role of the claims, not of the specification. It is clear that the specification is enabling, *In re Storrs*, *supra*, and that the claims of both patents are precise within the requirements of the law. *In re Moore*, 439 F.2d 1232, 169 USPQ 236 (CCPA 1971).

The finding that "matrix tensile strength" is indefinite, like the other findings under §112, appears to rest on a confusion concerning the roles of the claims and the specification. While finding "matrix tensile strength" in the claims indefinite, the district court at the same time recognized that the specification itself disclosed how to compute matrix tensile strength, in stating "to compute matrix tensile strength of a porous specimen, one divides the maximum force required to break the sample by the cross sectional area of the porous sample, and then multiplies this quantity by the ratio of the specific gravity of the solid polymer divided by the specific gravity of the porous specimen." Further, the specification provided the actual matrix tensile strength in several examples. It is well settled that a patent applicant may be his own lexicographer. In light of the disclosure of its calculation in the specification, we cannot agree that "matrix tensile strength" is either indefinite or non-enabling.

Nor does absence from the specification of a definition for "specific gravity of the solid polymer," a part of the computation of matrix tensile strength, render that computation indefinite

In this application, the calculation of excess paperboard is laid out explicitly and completely at pages 16-17 as well as at pp. 21-23 as follows:

*pp. 16-17:*

*It will be further appreciated that inasmuch as the deep dish container is fabricated from a planar or flat paperboard blank, the blank used to form the container has a substantially larger circumference than the formed*



product at the outward portions of the dish as is illustrated in Table 3. In Table 3, the paperboard take up at a given circumference of the deep dish container is determined as the difference between the circumference of the product and the corresponding circumference of the blank from which the container was made and may be expressed as:

$$\text{Board Takeup} = (\text{Corresponding Blank Radius} - \text{Product Radius}) \times 2\pi$$

**pp. 21-23:** In Table 4, the total circumferential board take up is calculated for a nominal 9½ inch diameter deep dish container as in Table 3, that is, for a 9.588 inch diameter product having a height of 1¼ inches made from an 11.09 inch diameter paperboard blank of the general shape described in the second column of Table 1. The total circumferential board take up at a given product radius is calculated as:

$$(\text{Corresponding Blank Radius} - \text{Product Radius}) \times 2\pi$$

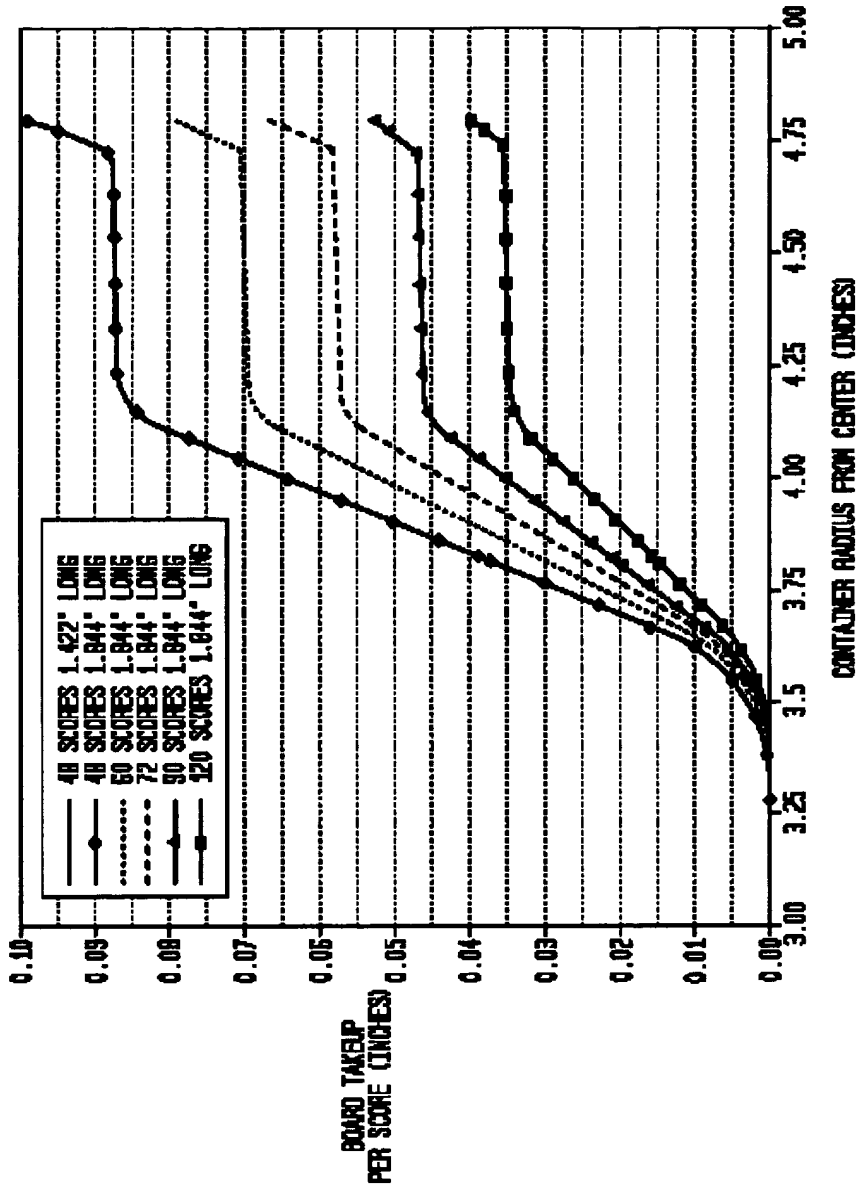
This take up is then divided by the number of scores at that product radius in order to calculate the total circumferential board take up per score. Thus for the products made from an 11.09 inch blank with various score patterns at a product radius of 4.001 inches, the corresponding blank radius is 4.499 inches, the total circumferential board take up at this radius is  $(4.499 - 4.001) \times 2\pi$  or 3.129 inches. For a 48 score pattern, the take up per score is  $3.129/48$  or 0.065 inches; for a 60 score pattern, the take up is  $3.129/60$  or 0.052 inches and so on. This data is also seen in Figure 10 for the various score patterns. The 60 to 90 score patterns with a 2-point rule shown are preferred.

In Table 5, there is calculated the circumferential board take up for the various blank patterns as in Table 4 for the same nominal 9½ inch products, from which the available score width (score or rule width times number of scores) is subtracted in order to determine the excess circumferential board width, which, in turn, is divided by the number of scores in order to calculate the excess paperboard per score. That is to say, for each product, at each radial increment, the total circumferential board take up is calculated by taking the difference between the corresponding blank radius and product radius and multiplying by  $2\pi$ . The length take up available is then calculated as the score width at that radius times the number of scores. The excess board per score is then calculated by subtracting the length take up available from the total circumferential board take up and dividing the difference by the number of scores. Thus at a product radius of 4.001 inches, the corresponding blank radius is 4.499 inches, the total circumferential board take up is  $(4.499 - 4.001) \times 2\pi$  or 3.129 inches. For a 2-point, 48 score pattern at this radius, the excess paperboard per score is then calculated as  $[3.129 - (0.028 \times 48)] \div 48$  or 0.037 inches. Likewise, the excess paperboard per score at this radius for the 2-point, 60 score pattern is  $[3.129 - (0.028 \times 60)] \div 60$  or 0.024 inches. The excess paperboard per score is expressed on a percentage (dimensionless) basis by simply dividing the excess paperboard per score in inches by the score width. Thus for the 2-point 60 score pattern having 0.024 inches excess board per score at a product radius of 4.001 inches as calculated above, the percentage excess paperboard per score at this radius is

*simply  $(0.024"/0.028") \times 100\%$  or about 85% excess paperboard per score. This data also appears in **Figure 11** wherein the preferred patterns of about 60 to about 90 scores exhibit an excess board per score of more than about 0.025 to about 0.04 inches per score about their outer flange portions. It should be appreciated from **Figure 11** that the shape of the curve plotted for the various products is a consequence of the container shape. That is to say, the excess paperboard per score sharply increases where the upwardly extending sidewall begins to rise upwardly (at a radius of about 3.6 inches in most cases shown) because the product radius is much smaller than the corresponding blank radius and is relatively constant; in other words the corresponding blank radius is increasing much more than the product radius in this region. At a radius of about 4.1 inches the excess paperboard per score remains relatively constant over a radial expanse of about 0.6 inches which corresponds to the relatively horizontal flange portion. That is to say, the excess paperboard per score is relatively constant about the flange since both the blank and the product are relatively planar. At about 4.75 inches of product radius, the excess paperboard per score again increases sharply since the downwardly extending lip again has a substantial vertical component.*

Moreover, numerous examples are given in Tables 3, 4, 5 and 6, as well as **Figure 10**, reproduced below.

FIG. 10



The rejected Claims comply in all respects with §112 and should be passed to issue; especially because the claimed subject matter is clearly nonobvious with respect to the prior art, as further discussed below.

**B. Claim Group I is Patentable Over *Marx et al.* '499 With Or Without *Sandstrom et al.* '815**

As is noted above, Claim Group I has specific recitation of height to diameter ratio, 60-90 scores, as well as rigidity of at least 500 grams.

*Marx et al.* teaches away from the invention because it teaches to **minimize** scores between 10 and 100. 60 is more than ½ of 100. 90 is almost 100.

*Marx et al.* '499 states that a maximum rigidity value of 280 grams is achievable within the geometry disclosed therein. Applicant has achieved rigidity values of nearly 600 without minimizing the number of scores which is undesirable because product uniformity suffers. Uniformity is likewise a very important attribute especially for consumer perception.

*Sandstrom et al.* '815 adds no relevant disclosure to *Marx et al.* '499 as regards geometry, number of scores or strength. The collective disclosure of the references thus teaches away from two salient claim features in the claims of Group I and thus all rejections should be withdrawn. *See* MPEP §2141.03, requiring that a reference also be considered for its negative teachings:

**PRIOR ART MUST BE CONSIDERED IN ITS ENTIRETY, INCLUDING DISCLOSURES THAT TEACH AWAY FROM THE CLAIMS**

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.* 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984) (Claims were directed to a process of producing a porous article by expanding shaped, unsintered, highly crystalline poly(tetrafluoroethylene (PTFE) by stretching said PTFE at a 10% per second rate to more than five times the original length. The prior art teachings with regard to unsintered PTFE indicated the material does not respond to conventional plastics processing, and the material should be stretched slowly. A reference teaching rapid stretching of conventional plastic polypropylene with reduced crystallinity combined with a reference teaching stretching unsintered PTFE would not suggest rapid stretching of highly crystalline PTFE, in light of the disclosures in the art that teach away from the invention, i.e., that the conventional polypropylene should have reduced crystallinity before stretching and that PTFE should be stretched slowly.).

In basing the obviousness rejection on *Marx et al.* '499, the Examiner has failed to consider the reference in its entirety and, accordingly, the rejections should be withdrawn.

The Examiner's application of *Marx et al.* '499 is also tantamount to an assertion that the invention is obvious because it is within the capability of one of skill in the art. The rejection should be vacated because the teaching rendering a claim obvious must come from a reference. *Note* MPEP §2143:

**FACT THAT THE CLAIMED INVENTION IS WITHIN THE CAPABILITIES OF ONE OF ORDINARY SKILL IN THE ART IS NOT SUFFICIENT BY ITSELF TO ESTABLISH *PRIMA FACIE* OBVIOUSNESS**

A statement that modifications of the prior art to meet the claimed invention would have been "well within the ordinary skill of the art at the time the claimed invention was made" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

MPEP §2143.01, 4<sup>th</sup> heading. All claims of Group I are accordingly believed allowable for the foregoing reasons.

**C. Claim Group II is Most Clearly Patentable**

In addition to the features of Claim Group I, Claim Group II includes recitation of specific amounts of excess paperboard per score in a deep dish container which lead to superior results in terms of strength and uniformity. These claims are patentable for the reasons noted above in connection with claim Group I and further because no reference suggests the claimed range of excess paperboard, that is, from about 0.015 inches to about 0.05 inches per score about the flange and/or specific percentages. The proposed modifications of *Marx et al.* '499 to arrive at the present invention unjustified by any art of

record in this application. In this regard, it was noted in the *Schenck* case, 218 USPQ 698 (CAFC 1983) that modifications unwarranted by the references themselves is improper:

If "rigidly fixed base structure" be read as encompassing its plate, says Nortron, it is equally readable on certain elements of the Rouy '654 prior art patent. That argument, however, turns on a conjectural modification of the disclosure of the '654 patent. Modification unwarranted by the disclosure of a reference is improper. See *In re Imperato*, 486 F.2d 585, 587, 179 USPQ 730, 732 (CCPA 1973); *In re Beigel*, 292 F.2d 955, 130 USPQ 206, (CCPA 1961). In its modification, Nortron labels the outer end portions of what Rouy calls "flexible connections" as "base plates" and adds numerical designations to them. There is no justification for that modification. Rouy did not regard or describe those end portions as base plates; nor did he describe them in any manner; nor did he disclose their dimension in the direction of his shaft axis. The Rouy '654 patent, disclosing a support structure with gaps and numerous other differences from the structure claimed in the '511 patent, has little if any relevance, as was apparently recognized by the examiner in the Patent and Trademark Office who cited the '654 patent, but did not apply it to the claims.

*Schenck v. Norton*, 218 USPQ 698, 702 (CAFC 1983). See also *In re Gordon et al.*, 221 USPQ 1125 (CAFC 1984).

The Claims of Group II are patentable.

D. Claim Group III is Likewise Nonobvious Over the References

Claim Group III contains perhaps the broadest claims of this application; *see*, for example, Claim 108 which does not contain any limitation as to number of scores or excess paperboard at the flange. These claims are nevertheless patentable since they contain recitation of structural features such as height to diameter ratio, pleating and so forth as well as an SSI rigidity of at least 500 grams. *Marx et al.* '499 teaches away, reporting a maximum achievable rigidity value of 280 grams.

The Claims of Group III are accordingly patentable under the well-established principle that significant improvements are patentable.

In this regard, Applicant notes *In re Wright*, 122 USPQ 522, 524 (CCPA 1959):

Though the court may have believed that each of the elements in the patented device was old, it does not follow that the combination was unpatentable. **We need not elaborate upon the rule that a novel combination of old elements which so cooperate with each other so as to produce a new and useful result or a substantial increase in efficiency, is patentable.** See *Lewyt Corp. v. Health-Mor, Inc.*, 7 Cir., 181 F.2d 855, 85 USPQ 335 , certiorari denied 340 U.S. 823, 71 S.Ct. 57, 95 L.Ed. 605, 87 USPQ 432 ; *Blaw-Knox Co. v. Lain Co.*, 7 Cir., 230 F.2d 373, 108 USPQ 356 . *Weller Manufacturing Company v. Wen Products, Inc.*, 7 Cir., 231 F.2d 795, 798, 109 USPQ 73, 75 (1956).

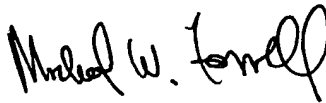
E. Claim Group IV Is Drawn To Patentable Subject Matter

The Claims of Group IV are generally subsumed within the scope of the claims of Group III and are believed patentable for the reasons stated in Section VII(D) immediately above. These claims are independently patentable with respect to the claims of Group III because they contain additional recitation of specific amounts of excess paperboard which leads to the surprising result of high strength with a relatively high number of scores, which is directly contrary to the teachings of the primary reference.

Inventions which are not taught by the prior art, especially those exhibiting superior results as is the case with the present invention, are patentable.

All claims should be allowed.

Respectfully submitted,



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APPENDIX A  
CLAIMS ON APPEAL

1. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores and the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.
2. The deep dish disposable container according to Claim 1, wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores from which the container is formed.
3. The deep dish disposable container according to Claim 2, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.
4. The deep dish disposable container according to Claim 1, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.



5. The deep dish disposable container according to Claim 1, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 to 3 layers of paperboard reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
6. The deep dish disposable container according to Claim 5, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 up to a maximum of 3 layers of paperboard reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
9. The deep dish disposable container according to Claim 1, wherein said radially scored paperboard blank has about 75 radial scores.
10. The deep dish disposable container according to Claim 9, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.
11. The deep dish disposable container according to Claim 8, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
12. The deep dish disposable container according to Claim 1 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
13. The deep dish disposable container according to Claim 12, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
14. The deep dish disposable container according to Claim 1, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.

15. The deep dish disposable container according to Claim 14, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
16. The deep dish disposable container according to Claim 15, wherein said container has about 100 percent excess paperboard per score about said flange portion.
17. The deep dish disposable container according to Claim 1, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
18. The deep dish disposable container according to Claim 1, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
19. The deep dish disposable container according to Claim 1, wherein the characteristic flange width to diameter ratio is from about 0.04 to about 0.12.
20. The deep dish disposable container according to Claim 1, wherein the characteristic flange width to diameter ratio is at least about 0.05.
21. The deep dish disposable container according to Claim 1, wherein said paperboard blank is provided with a substantially liquid-impervious coating comprising an inorganic pigment and a water-based, press-applied overcoat.
22. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, at least one surface of said paperboard blank bearing a substantially liquid-impervious coating comprising an inorganic pigment and a water-based, press-applied overcoat, the container having a substantially planar bottom portion, an upwardly extending sidewall portion, an outwardly extending flange portion, and a lip downwardly extending therefrom, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of

circumferentially spaced radially extending densified regions formed from two to three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, wherein the ratio of the height to diameter of said container is from at least about 0.1 to about 0.16, the ratio of the length of said downwardly extending lip to the diameter of said deep dish disposable container is from about 0.010 to about 0.030 and wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.

23. The deep dish disposable container according to Claim 22, wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores from which the container is formed.
24. The deep dish disposable container according to Claim 23, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.
25. The deep dish disposable container according to Claim 22, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.
26. The deep dish disposable container according to Claim 22, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 up to a maximum of 3 layers of paperboard in some portions reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
27. The deep dish disposable container according to Claim 22, wherein said radially scored paperboard blank has from about 50 to about 100 radial scores.

28. The deep dish disposable container according to Claim 27, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
29. The deep dish disposable container according to Claim 28, wherein said radially scored paperboard blank has about 75 radial scores.
30. The deep dish disposable container according to Claim 27, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.
31. The deep dish disposable container according to Claim 30, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
32. The deep dish disposable container according to Claim 27 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
33. The deep dish disposable container according to Claim 32, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
34. The deep dish disposable container according to Claim 22, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
35. The deep dish disposable container according to Claim 34, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
36. The deep dish disposable container according to Claim 35, wherein said container has about 100 percent excess paperboard per score about said flange portion.
37. The deep dish disposable container according to Claim 22, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.

38. The deep dish disposable container according to Claim 22, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
50. A deep dish disposable container formed of paper including a substantially planar bottom portion, an upwardly extending sidewall integrally formed with said substantially planar bottom portion and a flanged portion projecting outwardly from the upper extremity of said sidewall portion, wherein said upwardly extending sidewall defines an angle of from about  $10^{\circ}$  to about  $40^{\circ}$  from a vertical perpendicular to said substantially planar bottom portion and said outwardly projecting flange portion defines an angle of from about  $-10^{\circ}$  to about  $+15^{\circ}$  with a horizontal parallel to said substantially planar bottom portion and wherein further, said deep dish disposable container has a height to diameter ratio of from about 0.1 to about 0.16, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.
51. The deep dish disposable container according to Claim 50, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
52. The deep dish disposable container according to Claim 50, wherein said upwardly extending sidewall defines an angle of about  $30^{\circ}$  from a vertical perpendicular to said substantially planar bottom portion.
53. The deep dish disposable container according to Claim 52, wherein said outwardly projecting flange portion defines an angle of about  $5^{\circ}$  with a horizontal parallel to said substantially planar bottom portion.
54. The deep dish disposable container according to Claim 50, wherein said substantially planar bottom portion is joined to said upwardly extending sidewall by way of a first arcuate transition section defining a first radius of curvature, wherein the ratio of said first radius of

curvature to the diameter of said deep dish disposable container is from about 0.035 to about 0.075.

55. The deep dish disposable container according to Claim 54, wherein the ratio of said first radius of curvature to the diameter of said deep dish disposable container is about 0.05.
56. The deep dish disposable container according to Claim 54, wherein said upwardly extending sidewall is joined to said flange portion by a second arcuate transition section defining a second radius of curvature wherein the ratio of said second radius of curvature to the diameter of said deep dish disposable container is from about 0.015 to about 0.045.
57. The deep dish disposable container according to Claim 50, further comprising a lip portion joined to said flange portion and extending downwardly therefrom.
58. The deep dish disposable container according to Claim 50, wherein said deep dish disposable container has a diameter between about 9 and about 10 inches and height from about 1 to about 1.5 inches.
59. The deep dish disposable container according to Claim 50, formed from a radially scored, substantially planar paperboard blank, wherein said container has a substantial excess of paperboard per score such that during forming, said upwardly extending sidewall and said flange portions are provided with a plurality of circumferentially spaced, radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall and flange portions.
60. The deep dish disposable container according to Claim 59, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
61. The deep dish disposable container according to Claim 60, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.04 inches.

62. The deep dish disposable container according to Claim 59, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.04 inches.
63. The deep dish disposable container according to Claim 62, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
64. The deep dish disposable container according to Claim 59, wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
65. The deep dish disposable container according to Claim 64, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
66. The deep dish disposable container according to Claim 59, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
67. The deep dish disposable container according to Claim 59, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
68. The deep dish disposable container according to Claim 67, wherein said container has about 100 percent excess paperboard per score about said flange portion.
69. The deep dish disposable container according to Claim 59, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
70. The deep dish disposable container according to Claim 59, wherein the scores of the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 50 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.

71. The deep dish disposable container according to Claim 59, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
72. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion, an outwardly extending flange portion, and a lip downwardly extending therefrom, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from two to three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, wherein the ratio of the height to diameter of said container is from at least about 0.1 to about 0.16, the ratio of the length of said downwardly extending lip to the diameter of said deep dish disposable container is from about 0.010 to about 0.030 and wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at a 0.5 inch deflection.
73. The deep dish disposable container according to Claim 72, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.
74. The deep dish disposable container according to Claim 72, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.
75. The deep dish disposable container according to Claim 72, wherein said radially scored paperboard blank has from about 50 to about 100 radial scores.



76. The deep dish disposable container according to Claim 75, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
77. The deep dish disposable container according to Claim 76, wherein said radially scored paperboard blank has about 75 radial scores.
78. The deep dish disposable container according to Claim 75, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.
79. The deep dish disposable container according to Claim 78, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
80. The deep dish disposable container according to Claim 79, wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
81. The deep dish disposable container according to Claim 80, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
82. The deep dish disposable container according to Claim 72, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
83. The deep dish disposable container according to Claim 82, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
84. The deep dish disposable container according to Claim 83, wherein said container has about 100 percent excess paperboard per score about said flange portion.

85. The deep dish disposable container according to Claim 72, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
86. The deep dish disposable container according to Claim 72, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
108. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.
109. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said

deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.

APPENDIX B  
CLAIMS ON APPEAL ARRANGED BY GROUP

GROUP I

1. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores and the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.
2. The deep dish disposable container according to Claim 1, wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores from which the container is formed.
3. The deep dish disposable container according to Claim 2, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.
4. The deep dish disposable container according to Claim 1, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.

5. The deep dish disposable container according to Claim 1, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 to 3 layers of paperboard reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
6. The deep dish disposable container according to Claim 5, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 up to a maximum of 3 layers of paperboard reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
9. The deep dish disposable container according to Claim 1, wherein said radially scored paperboard blank has about 75 radial scores.
10. The deep dish disposable container according to Claim 9, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.
11. The deep dish disposable container according to Claim 8, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
17. The deep dish disposable container according to Claim 1, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
18. The deep dish disposable container according to Claim 1, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
19. The deep dish disposable container according to Claim 1, wherein the characteristic flange width to diameter ratio is from about 0.04 to about 0.12.

20. The deep dish disposable container according to Claim 1, wherein the characteristic flange width to diameter ratio is at least about 0.05.
21. The deep dish disposable container according to Claim 1, wherein said paperboard blank is provided with a substantially liquid-impervious coating comprising an inorganic pigment and a water-based, press-applied overcoat.
28. The deep dish disposable container according to Claim 27, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
29. The deep dish disposable container according to Claim 28, wherein said radially scored paperboard blank has about 75 radial scores.
60. The deep dish disposable container according to Claim 59, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
76. The deep dish disposable container according to Claim 75, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.
77. The deep dish disposable container according to Claim 76, wherein said radially scored paperboard blank has about 75 radial scores.
109. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over

B4

a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, wherein said radially scored paperboard blank has from about 60 to about 90 radial scores.

APPENDIX B  
CLAIMS ON APPEAL ARRANGED BY GROUP

GROUP II

12. The deep dish disposable container according to Claim 1 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
13. The deep dish disposable container according to Claim 12, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
14. The deep dish disposable container according to Claim 1, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
15. The deep dish disposable container according to Claim 14, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
16. The deep dish disposable container according to Claim 15, wherein said container has about 100 percent excess paperboard per score about said flange portion.



APPENDIX B  
CLAIMS ON APPEAL ARRANGED BY GROUP

GROUP III

22. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, at least one surface of said paperboard blank bearing a substantially liquid-impervious coating comprising an inorganic pigment and a water-based, press-applied overcoat, the container having a substantially planar bottom portion, an upwardly extending sidewall portion, an outwardly extending flange portion, and a lip downwardly extending therefrom, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from two to three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, wherein the ratio of the height to diameter of said container is from at least about 0.1 to about 0.16, the ratio of the length of said downwardly extending lip to the diameter of said deep dish disposable container is from about 0.010 to about 0.030 and wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.
23. The deep dish disposable container according to Claim 22, wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores from which the container is formed.
24. The deep dish disposable container according to Claim 23, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.

25. The deep dish disposable container according to Claim 22, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.
26. The deep dish disposable container according to Claim 22, wherein said plurality of circumferentially spaced radially extending densified regions are formed from 2 up to a maximum of 3 layers of paperboard in some portions reformed into substantially integrated fibrous structures with a thickness generally equal to adjacent areas of the sidewall or flange portions.
27. The deep dish disposable container according to Claim 22, wherein said radially scored paperboard blank has from about 50 to about 100 radial scores.
30. The deep dish disposable container according to Claim 27, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.
31. The deep dish disposable container according to Claim 30, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
37. The deep dish disposable container according to Claim 22, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
38. The deep dish disposable container according to Claim 22, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
50. A deep dish disposable container formed of paper including a substantially planar bottom portion, an upwardly extending sidewall integrally formed with said substantially planar bottom portion and a flanged portion projecting outwardly from the upper extremity of said sidewall portion, wherein said upwardly extending sidewall defines an angle of from about 10° to about 40° from a vertical perpendicular to said substantially planar bottom portion and said outwardly

projecting flange portion defines an angle of from about  $-10^{\circ}$  to about  $+15^{\circ}$  with a horizontal parallel to said substantially planar bottom portion and wherein further, said deep dish disposable container has a height to diameter ratio of from about 0.1 to about 0.16, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.

51. The deep dish disposable container according to Claim 50, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
52. The deep dish disposable container according to Claim 50, wherein said upwardly extending sidewall defines an angle of about  $30^{\circ}$  from a vertical perpendicular to said substantially planar bottom portion.
53. The deep dish disposable container according to Claim 52, wherein said outwardly projecting flange portion defines an angle of about  $5^{\circ}$  with a horizontal parallel to said substantially planar bottom portion.
54. The deep dish disposable container according to Claim 50, wherein said substantially planar bottom portion is joined to said upwardly extending sidewall by way of a first arcuate transition section defining a first radius of curvature, wherein the ratio of said first radius of curvature to the diameter of said deep dish disposable container is from about 0.035 to about 0.075.
55. The deep dish disposable container according to Claim 54, wherein the ratio of said first radius of curvature to the diameter of said deep dish disposable container is about 0.05.
56. The deep dish disposable container according to Claim 54, wherein said upwardly extending sidewall is joined to said flange portion by a second arcuate transition section defining a second radius of curvature wherein the ratio of said second radius of curvature to the diameter of said deep dish disposable container is from about 0.015 to about 0.045.
57. The deep dish disposable container according to Claim 50, further comprising a lip portion joined to said flange portion and extending downwardly therefrom.

58. The deep dish disposable container according to Claim 50, wherein said deep dish disposable container has a diameter between about 9 and about 10 inches and height from about 1 to about 1.5 inches.
59. The deep dish disposable container according to Claim 50, formed from a radially scored, substantially planar paperboard blank, wherein said container has a substantial excess of paperboard per score such that during forming, said upwardly extending sidewall and said flange portions are provided with a plurality of circumferentially spaced, radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall and flange portions.
61. The deep dish disposable container according to Claim 60, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.04 inches.
62. The deep dish disposable container according to Claim 59, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.04 inches.
63. The deep dish disposable container according to Claim 62, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
69. The deep dish disposable container according to Claim 59, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
70. The deep dish disposable container according to Claim 59, wherein the scores of the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 50 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
71. The deep dish disposable container according to Claim 59, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of

the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.

72. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion, an outwardly extending flange portion, and a lip downwardly extending therefrom, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from two to three layers of paperboard reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, wherein the ratio of the height to diameter of said container is from at least about 0.1 to about 0.16, the ratio of the length of said downwardly extending lip to the diameter of said deep dish disposable container is from about 0.010 to about 0.030 and wherein said densified regions extend over a profile distance corresponding to at least about 50 percent of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at a 0.5 inch deflection.
73. The deep dish disposable container according to Claim 72, wherein said densified regions extend over a profile distance corresponding to at least about 75 percent of the length of the scores from which the container is formed.
74. The deep dish disposable container according to Claim 72, wherein said container further comprises a lip portion joined to said flange portion and extending downwardly therefrom.
75. The deep dish disposable container according to Claim 72, wherein said radially scored paperboard blank has from about 50 to about 100 radial scores.
78. The deep dish disposable container according to Claim 75, wherein the scores of said radially scored paperboard blank have a width of from about 0.01 inches to about 0.05 inches.

79. The deep dish disposable container according to Claim 78, wherein the scores of said radially scored paperboard blank have a width of about 0.03 inches.
85. The deep dish disposable container according to Claim 72, wherein said deep dish disposable container has a height to diameter ratio of from about 0.125 to about 0.135.
86. The deep dish disposable container according to Claim 72, wherein the scores in the paperboard blank extend from the upper portion of the sidewall downwardly over at least about 75 percent of the height of the sidewall and terminate at a level substantially above said substantially planar bottom portion of said deep dish disposable container.
108. A rigid and strong deep dish disposable container prepared from a radially scored, substantially planar paperboard blank, the container having a substantially planar bottom portion, an upwardly extending sidewall portion and an outwardly extending flange portion, at least one of said upwardly extending sidewall portions and said outwardly extending flange portions being provided with a plurality of circumferentially spaced radially extending densified regions formed from a plurality of paperboard layers reformed into substantially integrated fibrous structures generally inseparable into their constituent layers having a thickness generally equal to adjacent areas of the sidewall or flange portions, said deep dish disposable container being provided with a height to diameter ratio of from about 0.1 to about 0.16 and a characteristic flange width to diameter ratio of at least about 0.04, wherein said densified regions extend over a profile distance corresponding to at least a portion of the length of the scores of the paperboard blank from which said container is formed, the deep dish container being further characterized by an SSI Rigidity of at least 500 grams at 0.5 inch deflection.

APPENDIX B  
CLAIMS ON APPEAL ARRANGED BY GROUP

GROUP IV

32. The deep dish disposable container according to Claim 27 wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
33. The deep dish disposable container according to Claim 32, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
34. The deep dish disposable container according to Claim 22, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
35. The deep dish disposable container according to Claim 34, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
36. The deep dish disposable container according to Claim 35, wherein said container has about 100 percent excess paperboard per score about said flange portion.
64. The deep dish disposable container according to Claim 59, wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
65. The deep dish disposable container according to Claim 64, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
66. The deep dish disposable container according to Claim 59, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.

67. The deep dish disposable container according to Claim 59, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
68. The deep dish disposable container according to Claim 67, wherein said container has about 100 percent excess paperboard per score about said flange portion.
80. The deep dish disposable container according to Claim 79, wherein said container has from about 0.015 inches to about 0.05 inches excess paperboard per score about said flange portion.
81. The deep dish disposable container according to Claim 80, wherein said container has from about 0.025 inches to about 0.04 inches excess paperboard per score about said flange portion.
82. The deep dish disposable container according to Claim 72, wherein said container has from about 50 percent to about 175 percent excess paperboard per score about said flange portion.
83. The deep dish disposable container according to Claim 82, wherein said container has from about 90 percent to about 140 percent excess paperboard per score about said flange portion.
84. The deep dish disposable container according to Claim 83, wherein said container has about 100 percent excess paperboard per score about said flange portion.